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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,216	05/29/2001	Wilhelm Heine	NI 132	5875

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EXAMINER

MENON, KRISHNAN S

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 12/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/866,216

Applicant(s)

HEINE ET AL.

Examiner

Krishnan S Menon

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claims 1 and 3 -15 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1 and 3-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff et al (US 4,695,380) in view of Timm et al (US 4,556,488).

Instant claim 1: Hilgendorff (380) discloses an apparatus for fluid separation comprising a pressure tight housing having a fluid inlet, retentate outlet and permeate outlet (3,5,4 -Fig 1,9), plurality of stacks of membrane filter elements arranged in series flow pattern (fig 1, 9), each stack including a plurality of spaced membrane pillow elements (9-fig 1,3,9) (see col 2 lines 41-55; col 3 lines 17-43), and fluid flow is conducted in a meander like pattern through each stack (fig 1,9). Each pillow is contained in a closed space (space or chamber 6) and includes inlet and outlet (fig 5), stacks arranged adjacent one another so that outlet of one is inlet of the next (see figures of Hilgendorff).

Hilgendorff does not teach plurality of separate stacks arranged in a longitudinal direction in the pressure housing. Timm teaches plurality of separate stacks of pillow membranes arranged longitudinally in a pressure housing (see fig 1,2 and 6; col 1 line

67-col 2 line 40). It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Timm in the teaching of Hilgendorff to arrange the plurality of membrane pillow stacks in the longitudinal direction of the vessel because this way, one could provide rectangular or oblong pillows with length twice the width (see Timm col 3 lines 34-46) and for the assembly and flow technology advantages (col 4 lines 44-47). Also, please note, with regard to the change of configuration, In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) (The court held that the configuration of the claimed disposable plastic nursing container was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed container was significant.).

Claims 3-12 add further limitations as follows:

Instant claim 3: separating elements between adjacent stacks with inlets and outlets (see figures of Hilgendorff and Timm).

Instant claim 4: inlets and outlets are slots formed in the separating elements (28-fig 6, slot in 33 and 34-fig 9)

Instant claim 5: the membrane pillows are essentially oblong in shape (fig 3, 4); and extend in the longitudinal direction (see Timm ref)

Instant claim 6: the membrane pillows are arranged in longitudinally displaced fashion (staggered) so that the flow reversal areas are formed by the projecting ends of alternate pillows (9-fig 1, 5)

Instant claim 7: membrane pillows have planar stabilizing elements disposed between outer membrane elements (structure in fig 3, 4)

Instant claim 8: spacer element with elastomer sealing element between pillows (fig 5, 8-fig 2a)

Instant claim 9: sealing elements are O rings (10-fig 5)

Instant claim 12: stacks have oblong cross-section (fig 9)

Claims 10 and 11: Hilgendorff (380) does not teach two permeate openings per pillow as in claim 10 and the openings being at different distances from the opposite ends of the membrane as in claim 11.. Timm teaches two permeate openings (see figures). It would be obvious to one of ordinary skill in the art at the time of invention to make two permeate openings as taught by Timm in the pillows of Hilgendorff (380) because of the modified pillows being twice as long as the width, for proper permeate collection . It would also be obvious that the two openings would have to be at different distances from opposite ends when the pillows are stacked as in Hilgendorff.

2. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hilgendorff (380) in view of Timm (488) as in claim 1 above and further in view of Luek et al (US 4,936,988).

Hilgendorff (380) in view of Timm (488) teaches a jacket for the stacks (see figures of Hilgendorff and Timm), which has an oblong or square cross-section (instant claim 15), and does not teach semicircular stack shells for the stacks (instant claim 13, 14). Luek (988) teaches circular stack shells formed from two or more pieces to accommodate rectangular (oblong) membrane stacks in a cylindrical housing, with a permeate discharge channel extending longitudinally there through (fig 1, 2; col 2 lines

30-45) for a membrane filter apparatus. It would be obvious to one of ordinary skill in the art at the time of invention to use the Luek (988) teachings in the teachings of Hilgendorff (380) in view of Timm (488) so that the shell would snugly fit in the housing as taught by Luek.

Response to Arguments

Argument re finality of the action because of use of a new reference: Applicant's amendment necessitated the new ground(s) of rejection presented in the Office action of 4/1/03. Accordingly, the action was made final. See MPEP § 706.07(a).

Argument that the apparatus is for separation of flow media: this is intended use; also, the references use their apparatus for flow media.

Arguments that the references do not teach the 'stacks' being in closed compartments disposed adjacent one another: This is already addressed in the rejection. Claim 1 recites 'closed space', whereas the argument is about closed 'compartments'. If the "closed space" is structurally different from the "closed compartment", then "closed compartment" is not recited in the claim.

Re argument that the membrane elements disposed in the longitudinal direction would help service/replace individual units, such an element is not claimed. Re argument that references do not suggest 'exchangeable meander type flow units', again, it is not claimed. Also please note: In re Dulberg, 289 F.2d 522, 523, 129 USPQ 348, 349 (CCPA 1961) (The claimed structure, a lipstick holder with a removable cap, was fully met by the prior art except that in the prior art the cap is "press fitted" and therefore not manually removable. The court held that "if it were considered desirable

for any reason to obtain access to the end of [the prior art's] holder to which the cap is applied, it would be obvious to make the cap removable for that purpose.").

Re arguments in general that suggests the applicant's reason for having the arrangements of the elements as claimed are different (easily replaceable, reduce space of flow reversal, reduce pressure drop, etc), the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

Re argument that the combination of Timm and Hilgendorff would not result in the arrangement according to the present invention, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Re the argument: "Since none of the references suggest or provides any hint that in a fluid separation apparatus meander-type flow passages could be disposed in several units arranged adjacent one another in the longitudinal direction of the apparatus, it can hardly be said credibly that the present invention was obvious from the references supplied by the examiner": if either of the references had independently suggested this, it would have become a 35USC 102 reference. The examiner

recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the primary ref shows the meander type flow path in a series flow arrangement, and the secondary ref shows the advantages of having a longitudinal arrangement as pointed out in the rejection.

Conclusion

This is a non-final first action after an RCE.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S Menon whose telephone number is 703-305-5999. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L Walker can be reached on 703-308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 09/866,216
Art Unit: 1723

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Krishnan Menon
Patent Examiner
December 19, 2003

Walker
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